

We claim:

- 1 1. In a radio communication system having at least a first mobile
2 node operable to communicate with a network part, the network part having a
3 first network portion and at least a second network portion, the first network
4 portion operated by a first network operator and the at least the second
5 network portion operated by at least a second network operator, a selected one
6 of the first network portion and the at least the second network portion
7 forming a home-network portion associated with the mobile node, an
8 improvement of apparatus for facilitating communication of the mobile node
9 when roaming beyond the home-network portion associated therewith, said
10 apparatus comprising:

11 a detector adapted to receive positional information associated with the
12 mobile node, the positional information communicated by the mobile node to
13 the network part at selected times when the mobile node communicates with
14 the network part, said detector for detecting values of the positional
15 information and for forming indications of the values of the positional
16 information;

17 an associator coupled to said detector to receive the indications formed
18 by said detector of the values of the positional information, said associator for
19 associating positioning of the mobile node together with one of the first and at
20 least second network portions, respectively, to which the positional
21 information is communicated, thereby to indicate, if the one of the network
22 portions, with which the positioning information indicates the mobile node to
23 be associated, is other than the home-network portion; and

24 a storage element coupled to said associator, said storage element for
25 storing values representative of associations formed by said associator, the
26 values together forming a roaming network table indicating with which of the
27 network portions the mobile node is capable of communicating.

1 9. The apparatus of claim 1 wherein the roaming network table
2 further includes an indication of a time at which the values representative of
3 the associations are stored at said storage element.

1 10. The apparatus of claim 9 further comprising a roaming table
2 entry deleter coupled to said storage element, said roaming table entry deleter
3 selectably operable to delete selected values of the roaming entry table
4 maintained at said storage element.

1 11. The apparatus of claim 10 wherein said roaming table entry
2 deleter deletes values of the roaming entry table stored thereat for longer than
3 a selected time period.

1 12. The apparatus of claim 1 wherein the radio communication
2 system comprises a multi-user system, wherein the at least the first mobile
3 node comprises a plurality of mobile nodes, wherein said detector detects
4 communications of any of the plurality of the mobile nodes, wherein said
5 associator associates positioning of any of the plurality of mobile nodes, and
6 wherein the roaming network table formed at said storage element includes
7 values associated with any of the plurality of mobile nodes.

1 13. In a method of communicating in a radio communication system
2 having at least a first mobile node operable to communicate with a network
3 part, the network part having a first network portion and at least a second
4 network portion, the first network portion operated by a first network operator
5 and the at least the second network portion operated by at least a second
6 network operator, a selected one of the first network portion and the at least
7 the second network portion forming a home-network portion associated with
8 the mobile node, an improvement of a method for facilitating communication
9 of the mobile node when roaming beyond the home-network portion
10 associated therewith, said method comprising:

11 detecting values of positional information, the positional information
12 associated with the mobile node and communicated by the mobile node to the

13 network part at selected times when the mobile node communicates with the
14 network part;

15 associating positioning of the mobile node together with one of the first
16 and at least second network portions, respectively, to which the positional
17 information is communicated, thereby to indicate, if the one of the network
18 portions with which the positioning information indicates the mobile node to
19 be associated, is other than the home network portion; and

20 forming a roaming network table indicating with which of the network
21 portions that the mobile node is capable of communicating responsive to
22 associations formed during said operation of associating.

1 14. The method of claim 13 wherein said operation of detecting
2 further comprises detecting values that identify the mobile node.

1 15. The method of claim 14 wherein the radio communication
2 system comprises a cellular radio communication system that provides for
3 GPRS (General Packet Radio Service) and wherein the values that identify the
4 mobile node during said operation of detecting comprise at least a portion of
5 an IMSI (International Mobile Subscriber Identity) number.

1 16. The method of claim 15 wherein the at least the portion of the
2 IMSI number comprises a mobile network code, the mobile network code
3 identifying the home network portion associated with the mobile node.

1 17. The method of claim 15 wherein the at least the portion of the
2 IMSI number comprises a mobile country code.

1 18. The method of claim 15 wherein said operation of forming the
2 roaming table further comprises identifying times at which values are entered
3 thereat.

1 19. The method of claim 18 further comprising the operations of
2 accessing the roaming network table and determining in which of the first and
3 at least second network portions that the mobile node, associated with the
4 home network portion, can communicate when roaming beyond the home-
5 network portion.

1 20. The method of claim 19 further comprising the operation of
2 deleting values out of the roaming network table after a selected time.